

## **REMARKS**

Applicant, his principal representatives in Germany, and the undersigned have carefully reviewed the first Office Action of January 18, 2007 in the subject U.S. patent application, together with the prior art cited and relied on by the Examiner in the rejections of the claims. In response, the Substitute Specification and claims have been amended in an effort to more clearly patentably define the subject invention over the prior art applied in the rejection of the claims. Reexamination and reconsideration of the application, and allowance of the claims is respectfully requested.

The subject application discloses, and claims a device that is usable to align sheets transversely with respect to a sheet running direction. As may be seen in Fig. 1, a plurality of sheets 10, 11 and 12 are aligned, in a sequential manner, on a feed table 1, as they are traveling in a sheet running direction L, which is depicted by the arrow L at the top of Fig. 1. Thus, Fig. 1 is a top plan view. In the depiction of Fig. 1, a first sheet 10 has already been aligned by the front register lays or marks 02, and by the side register lays or marks 03. That first sheet 10 is being fed in the sheet running direction L by a conventional sheet feeding device, which is not specifically depicted, and which is usable to move the sheet in the sheet running direction L and to also offset the sheet

laterally by the distance A, as depicted in Fig. 1.

As the first sheet 10 is moved in the sheet running direction L, the second sheet 11, which, as seen in Figs. 2 and 3, is beneath the sheet 10, is moved laterally to the left by rotation of the suction roller 05. That suction roller 05 has an axis of rotation which is aligned in the direction L in which the sheets are running. The suction roller 05 also has circumferentially spaced, axially extending suction strips which are defined by suction holes 06. These suction holes 06 extend in the axial direction of the suction roller 05 and the suction strips each have a relatively small circumferential width. As the suction roller 05 rotates in the clockwise direction indicated by the arrow in Fig. 2, the lower row of suction holes 06 will pass by the now offset edge of the top sheet 10 and will pull the intermediate sheet 11 to the left into lateral engagement with the side regular tags or marks 03.

As may be seen in Figs. 1 and 2, these rows of suction holes 06 are not continuous along the length of the suction roller 05. They are broken up into groups by unnumbered grooves or channels, as seen in Fig. 1. Cover marks 04 extend into these grooves on channels and act to insure that the lateral edge of the sheet being laterally registered; i.e. sheet 11 in Fig. 2, is not picked up off the first table 01 by a continued

attraction to suction rollers 5 such as, for example, as the result of static electricity.

While the second sheet 11 is registered laterally against the side marks or side register lays 03, a third sheet 12 can be moved in the sheet running direction beneath the intermediate sheet 11. This is because the lateral shifting of the intermediate sheet 11 is done only from above, by the rotation of the suction roller 05 and only while the row of suction holes 06 both overlie the sheet 11 and also are aligned with a slit mouthpiece 22 that is formed in a stationary pipe 21 which supports the suction roller 05 for rotation. As seen in Fig. 2, the alignment of the suction holes 06 with the slit mouthpiece 22 takes place over only a limited range of rotation of the suction roller 05. This range is indicated schematically by the tolerance strip 13 that is shown in Figs. 1 and 2. The top sheet 10, which had previously been laterally registered against the side marks 03 and which is being drawn in the sheet running direction L and is being laterally offset by the distance A, has its lateral edge outside the zone of suction formed by the alignment of the row of suction holes 06 with the slit mouthpiece 22. The bottom-most sheet 12 can be moved into a pre-alignment position beneath the sheet currently being aligned, sheet 11, while the previously aligned sheet, sheet 10, is moved forward in the sheet running direction.

In the Office Action of January 18, 2007, claims 60-62 were rejected under 35 USC 112, first paragraph as including subject matter not described in the specification. The recitation of "a suction roller drive motor" was asserted as not being supported in the specification or drawings.

In response, claims 60 and 61 have been amended to now recite a suction roller drive. Claim 62 has been cancelled. Support for this claim language is believed to be provided by the specification and drawings. Figs. 1 and 3 show the use of a toothed belt 15 which extends between a toothed belt pulley 14 that is connected to the suction roller 05, and a pinion 16. That pinion 16 is driven by a bevel gear 18. Another bevel gear 30 and pinion 31 are used to drive the upper bevel gear 18 through a shaft 19. The lower pinion 31 is driven by a shaft 34 that extends beneath the feed tube 01. All of this description is set forth at least in paragraph 0041 of the Substitute Specification.

Claims 30, 31, 37, 38, 43-45, 47, 48, 52-55, 58, 60, 63 and 66 were rejected under 35 USC 112, second paragraph. Claim 30 was noted as reciting a longitudinal direction in the sheet travel direction and a transverse direction. It was asserted as being unclear if both the sheet travel direction and the transverse direction have longitudinal directions or if the sheet travel direction is the longitudinal direction.

The claims pending in the application have been amended to recite that the invention is directed to a device for aligning sheets transversely with respect to a sheet running direction. The sheet running direction is clearly described in the specification as being the direction L indicated by the arrow in Fig. 1. The language of claim 30 has been further amended to recite that the sheet holding device has a sheet holding surface having a longitudinal distance in the sheet running direction and a transverse distance which is transverse to the sheet running direction. It is believed that this language, which is set forth in paragraph 0031 of the Substitute Specification, overcomes the rejection of claim 30 under 35 USC 112, second paragraph.

The recitation of "a suction roller longitudinal axis extending in the sheet travel direction was asserted as being indefinite. In response, claim 30 has been amended, as discussed above, to recite a sheet running direction. The suction roller has a longitudinal axis extending in the sheet-running direction. The language, as amended, is believed to be definite. Claim 38 has been cancelled.

The typographical error in claim 47 has been noted. Since that claim has been cancelled, the rejection is believed to be moot.

With respect to claims 53-55, the language of claims 48 and 49, from which

claims 53 and 54 depend, have been amended to provide proper antecedent basis for the term "said narrow suction strip." With respect to claim 55, that claim has been cancelled.

The Substitute Specification of the subject application has been reviewed during the course of the preparation of the subject Amendment. In several instances, the Substitute Specification has been amended to more clearly describe the subject invention. While a number of minor changes have been made to several of the paragraphs of the Substitute Specification, it is believed that these changes do not add any new matter.

Claims 30, 32, 33, 37-52, 60, 61 and 66-69 were rejected under 35 USC 103(a) as being unpatentable over U.S. patent No. 6,505,831 to Henn in view of U.S. patent No. 4,702,469 to Jeschke. Claim 31 was rejected over the combination of Henn in view of Jeschke and further in view of U.S. patent No. 4,245,831 to Michatek. Claims 34 and 54 were rejected as being unpatentable over Henn/Jeschke and further in view of U.S. patent No. 5,542,659 to Hauptenthal. Claims 63-65 were rejected as being unpatentable over Henn/Jeschke and further in view of U.S. patent No. 4,430,937 to Hubner. With respect to claims 30, 31, 35, 36, 43-45, 48, 52, 53, 56-58, 60, 63, 66 and 69, it was

asserted that the material being working on does not limit the apparatus.

In response to the Office Action, various ones of the claims have been amended, and others have been cancelled. It is believed that the claims now pending in the application are patentable over the prior art and references cited and relied on.

Turning initially to the Henn patent, No. 6,505,831, there is shown a method for the proper alignment of sheets. In this method, and in the device which is disclosed for practicing it, a sheet 1 is moved forwardly from a sheet stack 2 against front guides or stops 3 and 4 along a feed table 6. The sheet is also moved laterally against a side guide or stop 5. As seen in Fig. 2, this is accomplished by the cooperation of a turning roller 7 that is situated above the feed table 6, and by a cooperating traction roller 9 that engages the undersurface of the sheet 1. The turning roller 7 is mounted in a freely rotatable manner on a supporting arm 8. The transport roller 9 can be replaced by a draw rail 13, as seen in Fig. 3.

The rejection of apparatus claims 30, 32, 33 and of method claim 69 asserts that Henn shows a sheet folding device 7 positioned above the feed table and having an effective sheet holding surface in the longitudinal direction which is greater than the transverse direction. The Office Action further asserts that the sheet holding device; i.e.

roller 7 is supported by a flexible shaft that drives rotation about the longitudinal axis above the sheet support.

A careful reading of the Henn reference clearly shows that the features attributed to Henn in the Office Action are not, in fact, supported by the specification of the Henn reference. Initially, the roller 7 is a timing roller 7 that is used to press the sheets 1 against a cooperating transport roller 9. The transport roller 9 is located beneath the feed table 6 of the Henn reference and engages the undersurface of the sheet 1. The timing roller 7 has a smooth peripheral surface, all of which is the same in structure. There is no effective sheet holding surface, as that term is defined in the subject application. Further, the timing roller 7 of Henn is movable up and down in the sheet alignment machine of Henn. It is only periodically in engagement with the lower transport roller 9.

As discussed above, the timing roller 7 of Henn is "...mounted in a freely rotational manner on a supporting arm 8...", see Column 4, lines 20 and 21. There is no discussion of "the sheet holding device being supported by a flexible shaft" as recited in the Office Action.

The secondary reference to Jenschke is directed to a sheet alignment device. As



may be seen in Fig. 1, a first sheet 4 is movable along a feed table 1 into engagement with first lays 6. The sheet can be shifted laterally by a suction pull bar 8 that is located beneath the feed table 1. That suction pull bar 8 is movable laterally by the operation of a stepping motor 11. As seen in Fig. 3, an aligning cylinder 20 can be positioned beneath the feed table 1. It carries front register lays 6. It also carries a plurality of the suction pull bars 8, each of which extends in an axial direction of the cylinder 20 and each of which is shiftable axially with respect to the cylinder.

In the Office Action, it was asserted that Jeschke shows a suction roller drive motor, as discussed at Column 3, lines 45-47. In fact, that discussion is directed to the stepper motor which moves the suction pull bar 8 transversely with respect to the feed table. Note the discussion at Column 5, lines 51-63. There is no discussion of a specific drive for the aligning cylinder 20, although it is driven for rotation in a counterclockwise direction, as indicated by the arrow in Fig. 3. The discussion in Jeschke regarding a one half revolution is directed to the pregripper cylinder 3 that takes the sheets over from the aligning cylinder 20 and delivers them to an impression cylinder. The citation in the Office Action to Column 5, line 68 and Column 6, lines 1 and 2 of Jeschke does not have anything to do with a discussion of a half revolution of a cylinder.

In each of currently pending independent apparatus claims 30 and 32, and in method claim 69 there is recited a sheet transport roller or a sheet holding device which is situated above the sheet support. In both Henn and Jeschke, the roller that moves the sheet is located below the sheet. The limitation of such devices, as discussed in the specification of the subject application, is that a subsequent sheet cannot be moved into position while the active sheet is being engaged by the roller. The method steps of claim 69 specifically recite the orientation of the three sheets that can be dealt with simultaneously by use of the present invention. Such an operation is not possible using the upper and lower rollers of the Henn reference.

Claim 30 and 32 both recite the provision of a suction roller forming the sheet holding device and which is situated above the sheet support table. In both the Henn and Jeschke references, the roller that engages, and moves each sheet, is located beneath either the feed table, as seen in Henn, or operates after such a table, as seen in Fig. 3 of Jeschke. In the Henn reference, both the timing roller 7 and the transport roller 9 are needed to move the sheets 1 into engagement with the side register lays 5. As discussed previously, such a requirement limits the number of sheets which can be on the feed table at any one time. It is not possible to stage a subsequent sheet while

the active sheet is being aligned in the Henn device.

The secondary reference to Jeschke shows an aligning cylinder 20 that has an axis of rotation which is transverse to the direction of sheet travel, as indicated by the arrow in Fig. 3. The movement of the various suction pull bars 8, which are carried in the aligning cylinder 20, is parallel to the axis of rotation of the aligning cylinder 20. If the aligning cylinder 20 of Jeschke was to be substituted for the transport cylinder 9 of Henn, or even for the timing cylinder 7 of Henn, the suction pull bars 8 of Jeschke would extend in the direction of sheet travel, not in the direction of lateral alignment. Thus, the combination of Henn and Jeschke, as advanced by the Examiner, would not render obvious any of independent apparatus claims 30 and 32 or independent method claim 69.

The several secondary references, which were cited to show various aspects of ones of the features set forth in the dependent claims, have been reviewed. Initially, it is noted that numerous ones of those dependent claims have been cancelled, thus rendering their rejections moot. With respect to the ones still pending, most have been amended to clarify their language. The patent to Michatek shows an adjustable tray with a plurality of flexible segments. It was cited against claim 31 which has now been

amended and no longer recites the spaced lines asserted as being shown in Michatek.

Claims 34 and 59 were rejected over Henn/Jeschke and further in view of Hauptenthal. Both of those claims have been cancelled.

Claims 63-65 were rejected over Henn/Jeschke in view of Hubner. Claim 65 has been cancelled. Claims 63 and 64 depend from believed allowable independent claims 30 and 32 respectively. The Hubner patent shows a drive arrangement for a front register lay. Claims 63 and 64 are directed to a drive for the suction roller that is situated over the sheet first table. The teachings of Hubner would not overcome the deficiencies of the combination of Henn and Jeschke as advanced in the rejections of Claims 30 and 32.

The various other references cited by the Examiner, in the Office Action of January 18, 2007, were not relied on in the rejections of the claims. No further discussion thereof is believed to be required.

## SUMMARY

The Substitute Specification of the subject application has been amended to make various minor changes intended to render the description of the subject invention more easily understood. These changes do not constitute any new matter. The three independent claims now pending in the application, as well as various ones of the dependent claims, have been amended. It is believed that the claims now pending in the application are patentable over the prior art references cited and relied on, taken either singly or in combination. Allowance of the claims, and passage of the application to issue is respectfully requested.

Respectfully submitted,

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